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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,546	03/30/2001	Motomichi Shibano	3531.65362	7656
24978	7590	06/07/2004	EXAMINER	
GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606			PATEL, GAUTAM	
			ART UNIT	PAPER NUMBER
			2655	7

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/822,546

Applicant(s)

SHIBANO ET AL.

Examiner

Gautam R. Patel

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 15-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8-10 is/are rejected.
- 7) ☒ Claim(s) 4-7 and 11-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claims 1-28 are pending for the examination.

**NOTES/COMMENTS**

2. The change of address received in paper no. 4 dated 8-29-02 is acknowledged.

**Election/Restriction**

3. Claims 15-28 are withdrawn from further consideration by the examiner, 37 C.F.R. § 1.142(b) as being drawn to non-elected species and groups. Election was made with traverse of claims 8-14 and figs. 5-8.

4. Applicant's election with traverse of group A and figs. 5-8 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that "the species a [claims 1-7] would not impose a serious burden upon the examiner."

After further consideration this is found persuasive. Therefore, claims 1-14 are being examined now instead of elected claims 8-14.

Since the Examiner has accepted the argument regarding traverse by the Applicants, the requirement is deemed proper and is therefore made FINAL.

**Priority**

5. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119(a)-(d), which papers have been placed of record in the file.

**Specification**

6. The disclosure is objected for following reasons.

The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate

Art Unit: 2655

the invention from the Prior Art. It is recommended that the title should reflect the gist of or the improvement of the present invention.

Correction is required.

### **Claim Rejections - 35 U.S.C. § 103**

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa, US. patent 5,708,644 (hereafter Hasegawa) in view of Akram, US. patent 6,339,256 (hereafter Akram).

As to claim 1, Hasegawa discloses the invention as claimed [see Figs. 1-9, especially 1-3], including a stem, a substrate, a laser diode, and a photodetector, comprising:

a stem [figs. 1-3, unit 6];

a substrate [figs. 1-3, upper surface of unit 6] mounted on said stem;

a laser diode [figs. 1-3, unit 8] mounted on said substrate; and

a photodetector [figs. 1-3, unit 10 and 12] provided on said substrate for detecting return light from an object to be irradiated [col. 3, lines 3-22].

NOTE: Upper surface of the stem performs the function of the substrate in Hasegawa design.

Art Unit: 2655

Hasegawa discloses all of the above elements, including stem, which works as a substrate for mounting components. Hasegawa does not disclose very well known system of back-plane mounting, or substrate being separate from the stem and an insulating layer between them such that substrate can be biased.

However, back-plane mounting in thick-film, thin-film, chip-on-board and PC-board layout has been well known in the art since early sixties. These systems provide better heat dissipations and more compact designs and easy serviceability when provided with multiple insulating and conducting layers.

Also Akram clearly discloses:

A structure where the substrate being biased at a given voltage and having an insulating member opposed to said stem [col. 3, line 4 to col. 4, line 22].

Both Hasegawa and Akram are interested in improving the layout of the components, both are showing components mounted on a base and both are trying to make their design more compact.

One of ordinary skill in the art at the time of invention would have realized that the system of Hasegawa would have been sensitive to noise with the high frequency components. And these components may produce higher frequency disturbance. And short wires and close placement of components on the base would be a good design concept to have.

Therefore, it would have been obvious to have used a biased substrate in the system of Hasegawa as taught by Akram because one would be motivated to increase physical protection for dice [laser diodes, photo-detectors etc.] reduce noise, by placing components closes to signal traces in the system of Hasegawa and provide better signal controls and improve quality of the design [col. 4, lines 23-31; Akram].

9. The aforementioned claim 2, recites the following elements inter alia, disclosed in Hasegawa:

a beam splitter unit [fig. 1, unit 16] having a polarization beam splitter [fig. 1, unit 18] and a beam splitting element [fig.1, unit 22] formed of a birefringent crystal [col. 3, lines 2-50];

Art Unit: 2655

said photodetector comprising a first photodetector for detecting a servo signal from a laser beam focused on said object, and a second photodetector for monitoring an output from said laser diode [col. 3, line 54 to col. 4, line 22];

said beam splitter unit further having a hologram lens for focusing monitor light to said second photodetector [col. 4, lines 19-65].

10. Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa and Akram as applied to claims 1-2 above, and further in view of Noishiki, U.S. patent 5,367,530 (hereafter Noishiki).

As to claim 3, combination of Hasegawa and Akram discloses all of the above elements, including several photo-diodes. The combination does not specifically disclose the structure of the photo-diode that is being used in the system is a PIN-photodiode.

However, use, structure and application of PIN diodes are well known in the art. It is also well known that when single base layout is being used use of this kind of diodes saves space and layout complexity.

Also Noishiki clearly discloses:

That the photodetector comprises a PIN-photodiode [col. 5, lines 20-27]. Both combination of Hasegawa and Akram and Noishiki are interested in improving the layout of the single substrate design.

One of ordinary skill in the art at the time of invention would have realized that in the system of Hasegawa and Akram good lead position for better electrical connections is a good attribute to have along with compact arrangement of the components.

Therefore, it would have been obvious to have used a PIN structure of the photo-diode in the system of Hasegawa and Akram as taught by Noishiki because one would be motivated to make the layout of the components more simple and more compact thus reducing noise in the system of Hasegawa and Akram. [col. 2, lines 14-18 and lines 64-68; Noishiki].

Art Unit: 2655

11. Claims 8-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa, Akram and Noishiki as applied to claims 1-3 above, and further in view of AAPA (Applicant's Admitted Prior Art) [pages 1-6].

12. As to claim 8, it is rejected for the similar reasons set forth in the rejection of claim 1, *supra*. As to the added limitations of a base and a carriage moveable along the optical storage medium, the combination of Hasegawa and Akram does not disclose it.

However, use of a base and a movable carriage structure and application are well known in the art.

Also AAPA clearly discloses:

a base; and

a carriage moveable along said optical storage medium [pages 1-3, specification].

All Hasegawa, Akram, Noishiki and AAPA are interested in improving the layout of the single substrate design.

One of ordinary skill in the art at the time of invention would have realized that the system of Hasegawa, Akram and Noishiki size reduction is a good attribute to have along with compact arrangement of the components.

Therefore, it would have been obvious to have used a base and a and a moveable carriage in the system of the above combination as taught by AAPA because one would be motivated to reduce the size of the design [page 1, specification].

13. As to claims 9-10, they are claims corresponding to claims 2-3 respectively and they are therefore rejected for the similar reasons set forth in the rejection of claims 2-3 respectively, *supra*.

Art Unit: 2655

14. Claims 4-7 and 11-14 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Allowable Subject Matter**

15. Claims 4-7 and 11-14 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

NOTE: Claims 4-7 and 11-14 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose an optical pickup apparatus which includes a laser diode which is constructed such that "laser diode has a first electrode opposed to the [main] substrate with a first insulating film, a conductor film, and a second insulating film being interposed between said first electrode and the main substrate". It is noted that the closest prior art, Akram shows a similar apparatus which has components mounted with several layers of the conducting and insulating layers and also the base is biased. However Akram fails to disclose a laser diode structure, specifically in this kind of optical head environment, which has two distinct insulating films arranged in the manner described and claimed.

**Other prior art cited**

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



Art Unit: 2655

- a. Nakano et al. (US. patent 5,566,142) "Apparatus using and optical pickup".
- b. Taguchi (US. patent 6,011,768) "Laser light control ...".
- c. Beasom (US. patent 5,327,006) "Thin, dielectrically isolated ..".
- d. Taniguchi et al. (US. patent 6,134,208) "Optical pickup device ..".
- e. Fujita et al. (US. patent 4,672,187) "Focusing error detection ...".
- f. Rajchman et al. (US. patent 3,742,464) "Electrically and optically accessible memory".

#### **Contact Information**

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is (703) 308-7940. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is (703) 872-9314.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To can be reached on (703) 305-4827.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 305-4700 or the group Customer Service section whose telephone number is (703) 306-0377.

Gautam R. Patel  
Primary Examiner  
Group Art Unit 2655



**GAUTAM R. PATEL  
PRIMARY EXAMINER**

May 25, 2004